What is an inflatable packaging system?

In simple terms, an inflatable system creates air-filled packaging cushions on-demand. A roll of film mounted onto a small unit is used to create either single-chamber “pillows” or multi-chamber “hybrid” cushioning pads, depending on application needs. A variety of equipment models and film structures are available to suit performance and environmental positioning requirements.

Here are ten cost/performance areas you should evaluate before making a protective packaging commitment. Inflatable systems have the potential to reduce your overall packaging costs, while meeting your performance objectives.

1. Material

When comparing protective packaging materials, remember to use relevant units of measure. For example, if you are looking at expanded polystyrene (EPS) peanuts you need to understand cost per cubic foot. If you are analyzing air cushioning in a wrapping application, cost per square foot would be a more appropriate measure. How much of each material do you have to use to adequately protect your product? If you have to use more of the less expensive material, it can end up costing you more than a seemingly higher priced alternative. That’s why it is important to focus on the average cost per package. Of course, a lower overall material price is irrelevant if the performance goals aren’t being met.

2. Freight

Cost savings generated from relatively small reductions in the weight of packaging material, and/or the use of lower profile materials can be a significant factor that should not be ignored when computing total packaging cost. The more out of zone or international shipments made, the larger the impact these factors have on total packaging cost.

The size and weight of your package are the two aspects that will have the greatest impact on transportation costs. How does your protective packaging choice affect the economics of the distribution channel? Do your shipping containers result in efficient cube? Does your protective packaging choice allow you to reduce the size of your outer container resulting in a lower dimensional / billable weight? How does it perform when subjected to shock, vibration, compression and other tests? Will your package be delivered via common carrier or courier, full pallets or small parcel? These are just some points to consider when evaluating options.

There is also the environmental aspect. Heavier or bulkier packaging alternatives have a negative impact on the carbon footprint. How is your packaging decision impacting fuel and other transportation costs?

3. Warehousing/handling

Certain protective packaging solutions are more cumbersome to handle than others. A typical operation which doesn't use an on-demand packaging system can require weekly or even daily deliveries due to space constraints. This means that you have to dedicate time and staff to unload the truck, store the product on the shelf and rotate it into the packaging station. Compare this to a jumbo roll of inflatable systems film which takes up 1 cubic foot of space. It would take 450 cubic feet of void fill to create the same amount of protection. Think about the space savings compared to other materials such as peanuts, hand-crumpled kraft paper, or even traditional bubble. Because the "systems" approach creates cushioning on demand, there is no need for the space and time consuming storage/handling requirements that alternate materials require.

4. Labor

Often overlooked is the true cost of labor associated with a protective packaging decision. In addition to the labor playing a factor in some of the other areas under analysis, let's look at pack line efficiency. When using a properly integrated inflatable system, a machine generates air pillows on demand right to the packer. Inflatable systems can be optimized for improved ergonomic and productivity efficiencies. It typically takes five or six seconds to pack a box and send it down the conveyor belt. Other more labor intensive processes could take 10-times as long. Comparisons should be properly quantified for accurate evaluation. Effective use of automation can significantly reduce labor on a per package basis.

5. Damage/claims

One of the key elements of packaging performance is consistency. On demand inflatable systems help you create consistency from one package to the next. The equipment has been preprogrammed with parameters that have been deemed optimum for your particular situation. With manual approaches, the amount that is used comes down to operator decision. Is too little being used, negatively affecting protection? Is too much being used, wasting your resources? What is the impact of inconsistent protection on damage and customer claims?

6. Equipment investment

Cash outlay, financing or leasing? What type of investment are you being asked to make? What are the carrying costs? How long before the equipment pays for itself? What type of warranty comes with the equipment, and who is responsible for maintenance? Is the technology likely to change rapidly and you are left with an investment in an obsolete piece of equipment in a short period of time?

7. Maintenance

How much is it going to cost you to maintain your protective packaging equipment? Is there a service contract? Is the manufacturer known for its proactive approach to maintenance? Does the equipment have a good reputation or will you be subjected to repeated downtime? Is it easy to troubleshoot with a help desk or internal staff, or do you have to wait for a service technician to arrive?

In addition to maintaining the primary equipment, often overlooked is the impact to other plant components. For example, because EPS peanuts typically use gravity fed dispensing equipment to fill a package, small particles are dispersed outside of the package getting into conveyors and other parts. This has been known to create additional maintenance issues and equipment malfunctions within a facility.

8. Brand image/customer lifetime value

How does your protective packaging choice support your brand image? What is the consumer's reaction when they receive it? Do they open the shipper and find undamaged merchandise? Are the packaging components easy to discard/recycle or do they create a mess? Do the interior protective packaging materials appear professional, clean and neat? Will the impression left behind be one of quality? How will your protective packaging choice impact your customer's future purchasing decision?

9. Safety

There is also the issue of accident and injury avoidance. It goes back to having the right system set up in an ergonomically-appropriate fashion. The packaging environment should be set-up to avoid awkward motions, and have materials dispensed directly above the corrugated box to keep hands below the shoulders. Rotator cuff injuries can occur with poorly laid out work areas, or with any packaging system that requires constant reaching and guiding of materials above shoulder level.

Inflatable systems are frequently set up with simple but effective dispensing apparatus to make it easy to grab and tear off the appropriate number of cushions from an ergonomically friendly height and orientation.

"How to pack" training should be incorporated into your process. With employee turnover, and the use of temporary labor it is important to train early and often, with ongoing reinforcement by supervisors. Operators should be aware to generate movements throughout the body to avoid repetitive wrist and elbow movements.

It is also important to make sure that what needs to be lifted (rolls of film, stacks of paper, etc.)

is at a proper weight for your workforce to handle. A good benchmark is 35 pounds or less.

Certain material choices have an additional negative impact on your workforce. Unless they are wearing gloves and sleeves, high volume paper and corrugate handling can result in cuts/calluses on fingers and abrasion to forearms. Both paper and peanuts can create deposit dust onto the plant floor which then requires additional labor to sweep/clean from surfaces. Peanut hoppers should be filled by lowering and raising bins from ground level, not from elevated surfaces, and overflow should be picked up and disposed of quickly to minimize potential slip and falls.

Safety should always be a significant part of the decision process, and regardless of final choice in packaging, thoughtful processes and training should be developed to avoid injury.

10. Environment

No packaging review would be complete in today's business climate without considering the environmental impact. Is your protective packaging choice supporting your environmental initiatives and your customers' preferences/expectations? Does your material include recycled content? Is it easily recyclable? Are you using less to meet your performance goals? With recent advances in film technology, inflatable systems can meet performance requirements with thinner films providing a significant environmental benefit through material source reduction. Some manufacturers even offer biodegradable air pillow options.

Conclusion
By taking the time up front and doing a thorough comparison of the protective packaging alternatives viable for your operation and product line, you will end up positively impacting your costs: material and equipment, labor, freight, warehouse and maintenance. More importantly you will be protecting your brand and the relationship with your consumer